

IN THE CLAIMS

Kindly amend the claims as follows:

33. (Previously Amended) A process for the production of cis-1,4-polybutadiene having a gel content below 250 ppm, comprising polymerizing 1,3-butadiene in the presence of a catalyst and a polymerization diluent, wherein the polymerization diluent comprises an organic solvent and water particles having a median particle size less than or equal to about 10 μm .

34. (Previously Added) The process of Claim 33, wherein the water present in said polymerization diluent is present as particles having a median particle size in the range of from about 0.5 μm to about 8 μm .

35. (Previously Added) The process of Claim 33, wherein the water present in said polymerization diluent is present as particles having a median particle size in the range of from about 0.5 μm to about 6 μm .

36. (Previously Added) The process of Claim 33, wherein the water present in said polymerization diluent is present as particles having a median particle size in the range of from about 1 μm to about 5 μm .

37. (Previously Added) The process of Claim 33, wherein the organic solvent of said polymerization diluent is selected from the group consisting of an aliphatic compound, an aromatic compound and mixtures thereof.

38. (Previously Amended) The process of Claim 37, wherein the organic solvent is selected from the group consisting of a saturated hydrocarbon, an unsaturated hydrocarbon and mixtures thereof.

39. (Previously Amended) The process of Claim 38, wherein the organic solvent is selected from the group consisting of a C₄-C₁₀ aliphatic hydrocarbon, a C₅-C₁₀ cyclic aliphatic hydrocarbon, a C₆-C₉ aromatic hydrocarbon, a C₂-C₁₀ monoolefinic hydrocarbon and mixtures thereof.

40. (Previously Added) The process of Claim 39, wherein the C₄-C₁₀ aliphatic hydrocarbon is selected from the group consisting of butane, pentane, hexane, heptane, octane and mixtures thereof.

41. (Previously Added) The process of Claim 39, wherein the C₂-C₁₀ monoolefinic hydrocarbon is selected from the group consisting of butene-1, pentene-1, hexene-1 and mixtures thereof.

42. (Previously Added) The process of Claim 39, wherein the C₅-C₁₀ cyclic aliphatic hydrocarbon is selected from the group consisting of unsubstituted cycloalkanes, methyl substituted cycloalkanes, ethyl substituted cycloalkanes and mixtures thereof.

43. (Previously Added) The process of Claim 39, wherein the C₅-C₁₀ cyclic aliphatic hydrocarbon is selected from the group consisting of cyclopentane, cyclohexane, cyclooctane and mixtures thereof.

44. (Previously Added) The process of Claim 39, wherein the C₆-C₉ aromatic hydrocarbon is selected from the group consisting of benzene, toluene, xylene and mixtures thereof.

45. (Previously Added) The process of Claim 33, wherein the organic solvent of said polymerization diluent comprises a mixture of cyclohexane and butene-1.

46. (Currently Amended) The process of Claim 33, wherein said polymerization diluent additionally comprises a polymerization modifier selected from the group consisting of C_2-C_{18} C_3-C_{18} non-conjugated dienes, C_6-C_{12} cyclic dienes and mixtures thereof.

47. (Previously Added) The process of Claim 46, wherein the polymerization modifier is selected from the group consisting of 1,2-butadiene, 1,3-cyclooctadiene, 1,5-cyclooctadiene and mixtures thereof.

48. (Previously Added) The process of Claim 33, wherein said catalyst comprises a substantially anhydrous cobalt salt and an organo-aluminium halide compound.

49. (Previously Added) The process of Claim 48, wherein the substantially anhydrous cobalt salt comprises a compound corresponding to the formula:



wherein:

A: represents a monovalent anion or a divalent anion;

and

m: represents 1 or 2.

50. (Previously Added) The process of Claim 49, wherein the anion is derived from a C_6-C_{12} organic acid.

51. (Previously Added) The process of Claim 49, wherein the anion is selected from the group consisting of an acetylacetonate, an acetate, a hexanoate, an octoate, an oxalate, a tartrate, a stearate, a sorbate, an adipate and a naphthenate.

52. (Previously Added) The process of Claim 48, wherein the substantially anhydrous cobalt salt comprises cobalt octoate.

53. (Currently Amended) The process of Claim 48, wherein the organo-~~aluminium~~aluminum halide compound comprises a compound corresponding to the general formula:



wherein:

R: represents a C₂-C₁₂ alkyl group;

X: represents a halogen;

and

the sum of p + q equals 3.

54. (Currently Amended) The process of Claim 48, wherein said organo-~~aluminium~~aluminum halide compound is selected from the group consisting of a dialkyl ~~aluminium~~aluminum chloride compound, an alkyl ~~aluminium~~aluminum sesquichloride compound and mixtures thereof.

55. (Previously Amended) The process of Claim 48, wherein the organo-aluminum halide compound is selected from:

(I) a mixture of

(a) an alkyl aluminum chloride selected from the group consisting of diethyl aluminum chloride and ethyl aluminum sesquichloride,

or a mixture of :

(a) and

(b) an organo aluminum compound corresponding to the formula:



wherein:

R: represents a C₈-C₁₂ alkyl group;

and

(II) an alkyl aluminum chloride wherein the alkyl group has from 8 to 12 carbon atoms.

56. (Currently Amended) The process of Claim 48, wherein the organo ~~aluminium~~aluminum halide comprises a mixture of:

- (a) an alkyl ~~aluminium~~aluminum chloride selected from the group consisting of diethyl ~~aluminium~~aluminum chloride and ethyl ~~aluminium~~aluminum sesquichloride,

and

- (b) an organo ~~aluminium~~aluminum compound corresponding to the formula:



wherein:

R: represents a C₈-C₁₂ alkyl group.

57. (Currently Amended) The process of Claim 55, wherein the organo ~~aluminium~~aluminum compound corresponding to the formula R₃Al is present in an amount of from 0 to 1% by weight of the mixture.

58. (Currently Amended) The process of Claim 55, wherein the organo ~~aluminium~~aluminum compound corresponding to the formula R₃Al comprises tri-octyl ~~aluminium~~aluminum.

59. (Currently Amended) The process of Claim 48, wherein the substantially anhydrous cobalt salt comprises cobalt octoate and the organo-~~aluminium~~organo-aluminum halide compound comprises a mixture of diethyl ~~aluminium~~aluminum chloride and tri-octyl ~~aluminium~~aluminum.

60. (Currently Amended) The process of Claim 59, wherein the molar ratio of cobalt octoate to the total of diethyl ~~aluminium~~aluminum chloride plus tri-octyl ~~aluminium~~aluminum is from about 1:15 to about 1:30.

61. (Currently Amended) The process of Claim 59, wherein the molar ratio of chlorine in diethyl ~~aluminium~~aluminum chloride to the total ~~aluminium~~aluminum in diethyl ~~aluminium~~aluminum plus tri-octyl ~~aluminium~~aluminum is from about 0.7:1 to about 0.95:1.

62. (Previously Added) The process of Claim 33, wherein the water is mixed with the polymerization diluent by a mechanical method:

63. (Previously Added) The process of Claim 33, wherein the water is mixed with the polymerization diluent by sonic treatment.

64. (Previously Added) The process of Claim 33, wherein the polymerization temperature is in the range of from about 5°C to about 40°C. --